



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,494	05/10/2006	Xiaowei Liu	6246-2/US	7969
28997 7590 02/13/2009 HARNESS, DICKEY, & PIERCE, P.L.C 7700 Bonhomme, Suite 400 ST. LOUIS, MO 63105				
EXAMINER				
VLAHOS, SOPHIA				
ART UNIT		PAPER NUMBER		
2611				
MAIL DATE		DELIVERY MODE		
02/13/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/533,494

Applicant(s)

LIU, XIAOWEI

Examiner

SOPHIA VLAHOS

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2008.
2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☐ Claim(s) _____ is/are rejected.
7) ☒ Claim(s) 1-21 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-850)
4) ☐ Interview Summary (PTO-413)
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____
Paper No(s)/Mail Date 11/11/08

DETAILED ACTION

1. This application is in condition for allowance except for the following formal matters:

Information Disclosure Statement

2. The listing of references in the specification (in paragraphs [0016] & [0054] of the United States Patent Application Publication of the instant application) is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

3. Figures 2-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to because Fig. 9 received on 4/29/05 includes label with the typo "singnal" (instead of "signal") in the lower right corner. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claims 1, 9 are objected to because of the following informalities:

Claim 1, line 2 recites: "influence of **the** memory effect..." (emphasis added). The "the" should be changed to an "a" since there is no previous reference to a memory effect.

Claim 9, lines 4-5, 6-712-13, include limitations in parentheses which are redundant.

Claim 9, lines 7, 11, recites "...parameter **exacting** unit..." (emphasis added), it should be revised to "...parameter **extracting** unit...".

Allowable Subject Matter

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art of the record fails to teach or suggest alone or in combination: A wideband pre-distortion linearization method for removing the influence of a memory effect in a RF power amplifier and extending a linearization bandwidth of digital pre-distortion, comprising: performing out-of-band predistortion compensation for said input signal according to characteristic parameters of said amplifier, to obtain an out-of-band pre-distortion signal; adding said up-converted in-band predistortion signal to said out-of-band pre-distortion signal which is not up-converted, at an input of said power amplifier; regulating adaptively characteristic parameters of the amplifier used for generating the in-band pre-distortion signal and the out-of-band pre-distortion signal as recited in claim 1 and in combination with other steps of the claim.

Claims 1-8 are allowed over prior art.

The prior art of the record fails to teach or suggest alone or in combination: A wideband pre-distortion system for removing influence caused by memory effects in a radio power amplifier and extending linearization bandwidth of a digital pre-distortion, comprising: an in-band signal pre-distortion processing unit, an out-of-band signal pre-distortion processing unit, a signal summer, an adaptive model parameter exacting unit; wherein one part of an input signal is used to generate an in-band pre-distortion signal via said in-band signal pre-distortion processing unit, and another part of said input signal is used to generate an out-of-band pre-distortion signal via said out-of-band signal pre-distortion processing unit; said in-band pre-distortion signal is modulated and up-converted to a carrier frequency and then added with said out-of-band pre-distortion signal which is not up-converted directly at said signal summer; said adaptive model parameter exacting unit compares said feedback signal with an original input signal and generates a parameter updating signal based on such comparison result, said parameter updating signal is provided to said in-band signal pre-distortion processing unit and said out-of-band signal pre-distortion processing unit to adaptively regulate a pre-distortion compensation parameter required by said in-band signal pre-distortion processing unit and said out-of-band signal pre-distortion processing unit, as recited in claim 9 and in combination with other elements of the claim.

Claims 9-21 are allowed over prior art.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sehier et al. (U.S. 5,929,703)

Garrido (U.S. 5,959,500)

Cova (U.S. 6,141,390)

Frecassetti et al. (U.S. 6,316,994)

Leva et al. (U.S. 6,320,463)

Wright et al. (U.S. 6,356,146)

Kenington (U.S. 6,437,644)

Kim et al. (U.S. 6,426,617)

Wright et al. (U.S. 6,476,670)

Antonio et al. (U.S. 6,600, 792)

Fudaba et al. (U.S. 6,717,464)

Kim (U.S. 6,903,604)

Opas et al. (U.S. 6,928,122)

Darvish-Zadeh et al. (U.S. 7,053,709)

Ma (U.S. 7,194,043)

Ocenasek et al. (U.S. 7,321,635)

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is (571)272-5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SOPHIA VLAHOS/
Examiner, Art Unit 2611
2/13/2009

/Mohammad H Ghayour/
Supervisory Patent Examiner, Art Unit 2611